

WHAT IS CLAIMED IS:

1. An information processing apparatus,  
comprising:

5 (a) first encoding means for encoding digital  
data;

(b) interleaving means for interleaving the  
digital data; and

(c) second encoding means for encoding an output  
of said interleaving means,

10 wherein first and second error correction encoding  
algorithms are executed by sharing said first encoding  
means.

15 2. An information processing apparatus according  
to claim 1, wherein the first error correction encoding  
algorithm encodes the digital data by using said first  
encoding means, and the second error correction  
encoding algorithm encodes the digital data by using  
said first and second encoding means.

20 3. An information processing apparatus according  
to claim 2, wherein the first and second error  
correction encoding algorithms are executed in  
parallel.

25 4. An information processing apparatus according  
to claim 3, wherein a process of encoding the digital

data by the first error correction encoding algorithm  
using said first encoding means and a process of  
encoding the digital data by the second error  
correction encoding algorithm using said second  
5 encoding means, are executed in parallel.

5. An information processing apparatus according  
to claim 1, wherein the first error correction encoding  
algorithm performs a convolutional encoding of the  
10 digital data.

6. An information processing apparatus according  
to claim 1, wherein the second error correction  
encoding algorithm performs a turbo encoding of the  
15 digital data.

7. An information processing apparatus according  
to claim 1, wherein the first error correction encoding  
algorithm performs a non-recursive convolutional  
20 encoding of the digital data by using said first  
encoding means, and the second error correction  
encoding algorithm performs a recursive convolutional  
encoding of the digital data by using said first  
encoding means.

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8. An information processing apparatus according  
to claim 1, wherein a constraint length of the digital

data encoded by the first error correction encoding algorithm is different from a constraint length of the digital data encoded by the second error correction encoding algorithm.

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9. An information processing apparatus according to claim 1, further comprising:

selecting means for selecting either the first or second error correction encoding algorithm in accordance with a type of the digital data.

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10. An information processing apparatus according to claim 1, further comprising:

radio transmitting means for transmitting the digital data encoded by at least one of the first and second error correction encoding algorithms.

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11. An information processing method, comprising:

(a) a first encoding step of for encoding digital data;

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(b) an interleaving step of interleaving the digital data;

(c) a second encoding step of encoding an output of said interleaving step; and

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(d) a control step of controlling to make first and second error correction encoding algorithms be executed by sharing said first encoding step.

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data.

17. An information processing method according to claim 11, wherein the first error correction encoding  
5 algorithm performs a non-recursive convolutional encoding of the digital data by using said first encoding step, and the second error correction encoding algorithm performs a recursive convolutional encoding of the digital data by using said first encoding step.

18. An information processing method according to claim 11, wherein a constraint length of the digital data encoded by the first error correction encoding  
15 algorithm is different from a constraint length of the digital data encoded by the second error correction encoding algorithm.

19. An information processing method according to claim 11, further comprising:

20 a selecting step of selecting either the first or second error correction encoding algorithm in accordance with a type of the digital data.

20. An information processing method according to claim 11, further comprising:

a radio transmitting step of transmitting the digital data encoded by at least one of the first and

second error correction encoding algorithms.

21. An information processing apparatus,  
comprising:

5 (a) first decoding means for decoding encoded  
digital data;

(b) first interleaving means for interleaving an  
output of said first decoding means;

10 (c) second decoding means for decoding an output  
of said first interleaving means; and

(d) second interleaving means for interleaving an  
output of said second decoding means;

15 wherein first and second error correction decoding  
algorithms are executed by sharing said first decoding  
means.

22. An information processing apparatus according  
to claim 21, wherein the first error correction  
decoding algorithm decodes the digital data by using  
20 said first decoding means, and the second error  
correction decoding algorithm decodes the digital data  
by using said first and second decoding means.

23. An information processing apparatus according  
25 to claim 22, wherein the first and second error  
correction decoding algorithms are executed in  
parallel.

24. An information processing apparatus according to claim 23, wherein a process of decoding the digital data by the first error correction decoding algorithm using said first decoding means and a process of  
5 decoding the digital data by the second error correction decoding algorithm using said second decoding means, are executed in parallel.

25. An information processing apparatus according to claim 21, wherein the first error correction  
10 decoding algorithm performs a soft judgement decoding of the digital data.

26. An information processing apparatus according to claim 21, wherein the second error correction  
15 decoding algorithm performs a turbo decoding of the digital data.

27. An information processing apparatus according to claim 21, wherein said first decoding means  
20 normalizes a state metric value.

28. An information processing apparatus according to claim 21, wherein a constraint length of the digital  
25 data decoded by the first error correction decoding algorithm is different from a constraint length of the digital data decoded by the second error correction

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decoding algorithm.

29. An information processing apparatus according to claim 21, further comprising:

5        selecting means for selecting either the first or second error correction decoding algorithm in accordance with a type of the digital data.

30. An information processing apparatus according to claim 21, further comprising:

10        radio transmitting means for transmitting the digital data decoded by at least one of the first and second error correction decoding algorithms.

31. An information processing method, comprising:

15        (a) a first decoding step of for decoding encoded digital data;

      (b) a first interleaving step of interleaving an output of said first decoding step;

20        (c) a second decoding step of decoding an output of said first interleaving step;

      (d) a second interleaving step of interleaving an output of said second decoding step; and

25        (f) a control step of making first and second error correction decoding algorithms be executed by sharing said first decoding step.



32. An information processing method according to claim 31, wherein the first error correction decoding algorithm decodes the digital data by using said first decoding step, and the second error correction decoding algorithm decodes the digital data by using said first and second decoding steps.

33. An information processing method according to claim 32, wherein the first and second error correction decoding algorithms are executed in parallel.

34. An information processing method according to claim 33, wherein a process of decoding the digital data by the first error correction decoding algorithm using said first decoding step and a process of decoding the digital data by the second error correction decoding algorithm using said second decoding step, are executed in parallel.

35. An information processing method according to claim 31, wherein the first error correction decoding algorithm performs a soft judgement decoding of the digital data.

36. An information processing method according to claim 31, wherein the second error correction decoding algorithm performs a turbo decoding of the digital

data.

37. An information processing method according to  
claim 31, wherein said first decoding step normalizes a  
5 state metric value.

38. An information processing method according to  
claim 31, wherein a constraint length of the digital  
data decoded by the first error correction decoding  
10 algorithm is different from a constraint length of the  
digital data decoded by the second error correction  
decoding algorithm.

39. An information processing method according to  
15 claim 31, further comprising:

a selecting step of selecting either the first or  
second error correction decoding algorithm in  
accordance with a type of the digital data.

20 40. An information processing method according to  
claim 31, further comprising:

a radio receiving step of receiving the digital  
data.